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## FIGHTING INSECT PESTS IN 1932

A radio talk by Dr. C. L. Marlatt, Chief, Bureau of Entomology, delivered in the Department of Agriculture period of the National Farm and Home Hour, Tuesday, December 13, 1932, broadcast by a network of 48 associate NBC radio stations.

Salisbury:

The human race is continually engaged in active warfare to keep down the ravages of the insects attacking crops, forests, stored and manufactured products, men and animals. Many of the scientists who carry on humanity's fight against the insects are organized into the Bureau of Entomology, an important branch of the Department of Agriculture. Today, Dr. Charles L. Marlatt, the chief of that bureau, will report to us some of the major phases of the fight against insect pests during 1932. Ladies and gentlemen, Dr. Marlatt.

Marlatt:

I'm glad to visit again with the listeners of the Farm and Home Hour. I can report to you today that the ravages of some important insects in 1932 were not so serious as we had feared they might be. At the start of the season there were three outstanding threats of insect damage, but abnormal weather conditions largely dispelled these threats.

Early in the year, it seemed inevitable that crops in the Northwestern Plains States would suffer severe damage from common grasshoppers; and that the European corn borer and the boll weevil of cotton would take far heavier toll than usual.

In June, however, when most of the grasshopper eggs were hatching, torrential rains and cool weather killed the young hoppers by millions and also delayed into midsummer the emergence of others. The rains were beneficial in another way. They created a luxuriant growth of wild vegetation. The grasshoppers that survived fed on this wild vegetation and before they had foraged much for other food, the small grain crops had matured and were out of danger.

Now this happy condition did not exist all through the Northwest. It did not exist in Minnesota or North Dakota. But these two states were able to spend more than 300 thousand dollars for poison grasshopper bait for the use of farmers. This bait killed enough of the grasshoppers to check the plague before the damage became disastrous. In June and July I visited these states and saw the destruction of half grown grasshoppers in grain fields by use of the poison bran bait. I especially noticed one such field where the dead grasshoppers practically formed a mulch over the soil where the bran had been scattered. The outlook for grasshopper damage next year is much reduced over the season just passed and there is also the possibility that weather may be unfavorable to the grasshoppers this winter and next spring.

The forces of nature that removed the threat of very serious damage by the corn borer were not rains and cold weather. They were hot spells. Hot spells

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that occurred right in the midst of the period when the corn borer moths were laying eggs. The hot weather dried up the eggs on the leaves and also killed many of the larvae that did hatch from the eggs. Therefore, instead of the threatened heavy losses to corn in New York, Pennsylvania, Michigan, Ohio, and Indiana, the season actually brought reductions of the numbers of corn borers in some of these States.

Mid-summer hot, dry spells in the Cotton Belt also were responsible for averting most of the damage threatened by the manifold increase in the winter survival of boll weevils. As a matter of fact, the weevils did heavy damage early in the season. They destroyed perhaps a fifth or even a fourth of the first cotton crop. But the hot, dry spell in mid summer burned up the weevil larvae in the cotton buds or squares, decisively checked the pests, and permitted a very considerable second or top crop.

Certainly, it was very exceptional to have three insect pests as important as grasshoppers, the corn borer, and the boll weevil controlled by climatic conditions in one season. Even so, the growers of crops affected by most insects had to depend upon the standard methods of control worked out by long years of entomological research. This was true, for instance, of apple growers fighting the codling moth. The weather favored the moth last season. Prospects were bad for fruit growers. But the ones who rigidly followed the standard control methods won out against the moth and its larval form, the apple worm. Very recently I visited the Wenatchee and Yakima Valleys in the central part of the State of Washington. A prominent apple grower of this section told me that he followed the recommendations of our bureau exactly, spraying six times in order to control the codling moth. The result was that his loss from the apple worm was less than a half of one per cent, for his Winesap crop, and less than one and a half per cent for his Jonathans. Both losses of course were negligible. But if he had not sprayed, he would have had little if any sound fruit for sale.

Now I want to discuss with you the Japanese beetle situation. This insect came into the eastern part of the United States with an importation of ornamental plants about 20 years ago.

It now covers a good deal of the northeastern section of the country, and we have found isolated infestations in Ohio, Michigan, and the Carolinas. So far as we now know, its spread will become nation-wide.

In addition to other important damage, the adult Japanese beetle destroys the foliage of trees. The grub of the Japanese beetle destroys sod. Therefore, control of the Japanese beetle is of great interest and importance to every home owner in the city or country. Hence, our bureau is trying hard to develop every promising means of artificial or natural control. We have developed methods of artificial control, but they involve fairly large expense for poisoning the sod and spraying or dusting trees and plants. So the big hope for the future lies in natural control. I am happy to say that we seem now to be in the way of obtaining natural control. We have scoured the world to find insect enemies of the Japanese beetle. We have brought in many such enemies. Several have become well established in this country. In fact, one of them that attacks the beetle grub is now so abundant that you can easily see it during the season flying about in search for favorable points to mine for these grubs.



In closing this sketch of a few of the subjects of the war on insects during the past year, I want to call attention to two types of prognostication of insect damage which give direct help in controlling the insects. I am speaking of the information that entomologists gather on the number of Hessian flies present in the Wheat Belt, and on the numbers of the leaf hoppers which spread the curly top disease of sugar beet in the western states. You wheat growers in the territory from Kansas to Western Maryland and Pennsylvania have heard many times during the past summer and fall that the Hessian flies were present in greater numbers than in any other year for a decade.

This information was gathered by cooperation between the entomologists of our bureau and the entomologists of the State agricultural colleges, experiment stations, extension services and departments of agriculture. It was indicated to you this fall, that planting should be postponed until the date when the risk of Hessian fly infestations had passed.

The leaf hopper of the sugar beet is a migrating insect. It comes into the beet fields each year from the wild areas surrounding the irrigated valleys. Then in the fall, it goes back into the wild country. Our field entomologists in the West make surveys in the fall and in the early spring and find out how numerous the leaf hoppers are in the wild areas. With this information at hand, they can tell beet growers before planting time whether large migrations of the hopper are likely during the summer. During the past six years western sugar beet growers generally have relied upon this survey and it has been the means of saving both growers and manufacturers of beet sugar from enormous losses.

The fight on the beet leaf hopper is going further in California. There, the insects breed in the wild areas during the fall and winter. If we could destroy them during this season, we could materially reduce the threat of invasion. A few weeks ago I saw extensive experiments carried on with spraying wild host plants of the leaf hoppers. I was glad to note that there was a real promise of substantially reducing the number of beet leaf hoppers in California and controlling the summer migrations of the insect by such operations.

I must take my leave of you now. I have been able to cover only a few of the major phases of the work of our entomologists during the year but let me say that practically all important findings of research on ways to prevent insect damage to farm, forest, household, and stored products are available in our reports and publications. The same is true of the facts resulting from our research on methods of beekeeping. A letter to the Department of Agriculture will bring specific information to any of you who wish it on problems of controlling or preventing insect damage or of managing apiaries.

